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LEREBOUR et al.
Serial No. 09/782,520

REMARKS

Reconsideration is requested.

The claims have been amended, without prejudice, to advance prosecution. A basis for the Amendment may be found, for example, in the paragraphs spanning page 2, penultimate line through page 3, line 5 of the specification. As noted previously, the presently claimed invention provides a method of reducing the adhesion of microorganisms to the surface to the skin and/or mucous membranes. The presently claimed method does not require the use of antibiotic, bactericidal or fungicidal agents.

The Section 102 rejection of claims 13-17 and 20-22 over Wright (U.S. Patent No. 5,547,677), is obviated by the above amendments. Reconsideration and withdrawal of the rejection are requested as Wright, to the extent it teaches a method of applying a composition to the skin and/or mucous membranes, provides a composition containing antibiotic, bactericidal or fungicidal agents.

Specifically, the compositions of Wright are "antimicrobial oil-in-water emulsions" (see, column 2, lines 45-46). The term "antimicrobial" is used by Wright to describe an ability to inactivate infectious pathogens wherein "inactivate" is further defined as killing or inhibiting growth. See, column 2, lines 55-58 of Wright.

The Examiner is urged to appreciate that the presently claimed invention does not require inactivation, as described by Wright, but rather reducing the adhesion of microorangisms to the surface of the skin and/or mucous membranes.

The applicants further note that Wright includes the use of cationic halogen-containing compounds having a C_{12}-C_{16} chain. The pref rred compounds within this group includ d by Wright is cetylpyridinium chloride (CPC), cetylpyridinium bromide

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(CPB) and cetyltrimethylammonium bromide (CPAB). See, column 3, lines 10-16 of Wright. Each of these compounds are known antimicrobial agents. See, page 336 of the Merck index, 12 edition, Merck and Company, Inc., Whitehouse Station, New Jersey (1996), copy attached. Accordingly, to the extent Wright may teach application of a composition to the skin and/or the mucous membranes, the composition of Wright fails to inherently or literally teach or suggest a method of reducing the adhesion of microorganisms to the surface of the skin and/or the mucous membranes in the absence of antibiotic, bactericidal or fungicidal agents, as presently claimed. Withdrawal of the Section 102 rejection of claims 13-17 and 20-22 over Wright is requested.

The Section 102 rejection of claims 13-24 over Harbeck (2001/000166) is traversed. Reconsideration and withdrawal of the rejection are requested as Harbeck discloses, at best, compositions which include borax and/or benzoin, each of which is a known antibacterial agent. See, the attached copy of a definition of borax from the website encyclopedia.com printed June 16, 2003 wherein borax is indicated as being a mild antiseptic and cleansing agent; and the attached copy of page 781 of the Merck Index defining "gum benzoin" as an antiseptic; and the attached copy of page 114 from Webster's II New Riverside university dictionary (Houghton Mifflin Company, 2 Park Street, Boston, MA 02108 (1994)), defining "antiseptic" as relating to antisepsis which is "the destruction of microorganisms that cause disease, fermentation, or putrefaction." In view of the attached, therefore the applicants respectfully submit that each of the compositions of Harbeck include at l ast an antibiotic, bactericidal or fungicidal agent and therefore application of any of the compositions according to Harbeck to skin and/or

mucous membranes would not, inherently or literally, provide a method of reducing the adhesion of microorganisms to the surface of the skin and/or mucous membranes, as presently claimed. Withdrawal of the Section 102 rejection of claims 13-24 over Harbeck is requested.

A Section 102 rejection of claims 13 and 21-24 over JP 05186328 is traversed. Reconsideration and withdrawal of the rejection are requested as the composition of the cited document includes "lower alcohol" which, arguably, includes ethanol, methanol and isopropyl alcohol. Each of these lower alcohols, and mixtures thereof, are known bactericidal agents such that the composition of JP 05186328, if applied to the skin and/or the mucous membranes, is unable to literally or inherently provide a method of reducing the adhesion of microorganisms to the surface of the skin and/or the mucous membranes in the absence of antibiotic, bactericidal or fungicidal agents. See, the attached description of chemical disinfection from the website "health.vic.gov.au/ohs/polguide/chemdis.doc" which appears to be from the Australian Government publishing service and was printed June 16, 2003, and includes a description of "alcohol" having a good bactericidal, fungicidal and mycobactericidal activity. Withdrawal of the Section 102 rejection of claims 13 and 21-24 over JP 05186328 is requested.

The Section 103 rejection of claims 13-24 over Wright in view of Harbeck should be withdrawn as the cited documents fail to teach or suggest the presently claimed invention, as described above.

Entry of the above amendments will obviate the outstanding rejections, without raising new issues requiring further search and/or consideration. No new matt r has

LEREBOUR et al.
Serial No. 09/782,520

been added. Entry of the above amendments and withdrawal of the outstanding rejections are requested.

The claims, as amended, are submitted to be in condition for allowance and a Notice to that effect is requested.

The Examiner is requested to contact the undersigned if anything further is required in this regard.

Respectfully submitted,

NIXON & VANDERHYE P.C.

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THE MERCK INDEX

AN ENCYCLOPEDIA OF
CHEMICALS, DRUGS, AND BIOLOGICALS

TWELFTH EDITION

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Section:	**Saf Practice and Environment**	**Policy No.:**	**S5.1**
Sub-Section:	**Inf ction Prevention & Surveillance**	**Issue Date:**	**February 2001**
Subject:	**CHEMICAL DISINFECTION**	**Revision No.:**	**1**

PURPOSE AND SCOPE

The purpose of this policy is to provide NWH network staff with guidelines for the chemical disinfection of instruments and equipment.

POLICY

The Network policy on Chemical Disinfection is:

- **All instruments and equipment must be cleaned prior to chemical disinfection to remove any particulate matter which may harbour infectious material**
- **The level of chemical disinfection required must be appropriate for the type of instrument or equipment, its clinical usage and the manufacturer's recommendations**
- **High level chemical disinfection should only be used when steam sterilisation is unsuitable, when low temperature chemical sterilisation is either unavailable or is not recommended by the instrument manufacturer, or when thermal disinfection is unsuitable for the device**
- **Glutaraldehyde formulations should be used with caution, in accordance with the manufacture's directions. Glutaraldehyde should only be used in a well-ventilated area as defined by Worksafe Australia and appropriate personal protective equipment should be worn**

PROCEDURE

Disinfectant Group

Antimicrobial Activity

Other Properties/Comments

Alcohol

Good:

- bactericidal
- fungicidal
- mycobactericidal

Variable:

- virucidal

Poor:

- not sporicidal

Ethanol:
70 % w/w ethanol is rapid acting and dries quickly
90% w/w ethanol is useful as a virucide.
100% thanol is not an effective disinfectant.
Ethanol is less effective against non enveloped (HBV) viruses than against enveloped (HIV) viruses.
Alcoh l (isopropanol):

Effective at 60-70%v/v but has variable mycobactericidal activity.
Not an effective virucide.
General properties of alcohols:

- Does not penetrate organic matter well, acts as a fixative, prior cleaning is required.
- Flammable.
- Can be combined with other bactericidal compounds for skin disinfection.

Aldehydes
Good:

- bactericidal
- fungicidal
- virucidal
- sporicidal - slow

Variable:

- mycobactericidal

Ineffective:

- CJD

Highly irritant.
Acts as a fixative, prior cleaning is required
Penetrates organic material slowly; not inactivated by inorganic materials.
Usually non corrosive to metals.
Buffered alkaline solutions need to be activated prior to use and have limited shelf life.
Acidic solutions more stable, but slower acting; glycolated solutions have shorter kill times.
Instrument disinfectant when used for short periods (10-20 minutes).
Slow acting against atypical mycobacteria.

Chlorhexidine
Good:

- bactericidal – gram positive organisms
- less active against gram-negative organisms

Variable:

- virucidal
- fungicidal

Poor:

- not sporicidal
- not mycobactericidal

Low toxicity and irritancy.
Inactivated by organic matter, soap and anionic detergents.
Useful for skin and mucous membrane, disinfection, but is neurotoxic (must not contact middle ear) and may cause corneal damage.

Hypochlorites
Good:

- bactericidal

- virucidal
- fungicidal

Variable:

- sporicidal (pH 7.6 buffer)
- mycobactericidal (5000 ppm)

Fast acting.
Inactivated in presence of organic matter at low concentrations.
Incompatible with cationic detergents.
High concentrations corrosive to some metals.
Diluted form unstable.
Decomposed by light heat and heavy metals.
Chlorine gas released when mixed with strong acids.
Carcinogenic reaction product when mixed with formaldehyde.
Useful in food preparation areas and virology laboratories.

Iodine Preparations
Good:

- bactericidal
- virucidal
- fungicidal

Variable:

- sporicidal

May be inactivated by organic matter.
May corrode metals e.g. aluminum.
Useful as skin disinfectant, but some preparations may cause skin reactions.
Antiseptic strength iodophors are not usually sporicidal.

Peracetic acid

Other peroxygen compounds

Good:

- bactericidal
- virucidal
- fungicidal
- sporicidal

- mycobactericidal

Variable:

- sporicidal

mycobactericidal
Highly irritant.
Corrosive to some metals.
Reduced activity in the presence of organic matter.
Usually contain detergent.
May be used as an instrument disinfectant if compatible.
May be used as an instrument sterilant under specified conditions if compatible.
Hydrogen peroxide and potassium. monoperoxygen sulfate have low toxicity and irritancy.

Phenolics
Good:

- bactericidal
- mycobactericidal
- fungicidal

Variable:

- virucidal

Poor:

- non enveloped viruses

Avoid contact with skin/mucous membranes.
Stable in presence of organic matter.
Incompatible with cationic detergents.
Not for use on food preparation surfaces/ equipment.
Detergent usually included.
Absorbed by rubber and plastics.
Diluted form unstable.

FURTHER INFORMATION

Infection Control Service.

National Health and Medical Research Council. 1996. Infection control in the health care setting. Canberra: Australian Government Publishing Service.

Section:	**Safe Practic and Environment**	**Policy N .:**	**S5.1**
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FURTHER INFORMATION

Infection Control Service.

National Health and Medical Research Council. 1996. Infection control in the health care setting. Canberra: Australian Government Publishing Service.

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(so´deem tetrebôr´at dekehi´drat) or sodium tetraborate decahydrate , chemical compound, $Na_2B_4O_7 \cdot 10H_2O$; sp. gr. 1.73; slightly soluble in cold water; very soluble in hot water; insoluble in acids. Borax is a colorless, monoclinic crystalline salt; it also occurs as a white powder. It readily effloresces, especially on heating. It loses all water of hydration when heated above 320 and fuses when heated above 740; a "borax bead" so formed is used in chemical analysis (see **bead test**). Borax is widely and diversely used, e.g., as a mild antiseptic, a cleansing agent, a water softener, a corrosion inhibitor for antifreeze, a flux for silver soldering, and in the manufacture of enamels, shellacs, heat-resistant glass (e.g., Pyrex), fertilizers, pharmaceuticals, and other chemicals. It is sometimes used as a preservative but is toxic if consumed in large doses. Naturally occurring borax (sometimes called tincal) is found in large deposits in the W United States (Borax Lake in Death Valley, Calif.; Nevada; and Oregon) and in the Tibet region of China. Borax can also be obtained from borate minerals such as kernite, colemanite, or ulexite. California is the chief source of borate minerals in the United States.

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an·ti·mo·ni·al (ăn'tə-mō'nē-əl) *adj.* Of or containing antimony. —*n.* A medicine containing antimony.

an·ti·mo·ny (ăn'tə-mō'nē) *n.* [ME *antimonie* < Med. Lat. *antimonium.*] *Symbol* **Sb** A metallic element used in a wide variety of alloys, esp. with lead in battery plates, and in paints, semiconductors, and ceramic products, atomic number 51; atomic weight 121.75.

antimony glance *n.* Stibnite.

an·ti·ne·o·plas·tic (ăn'tē-nē'ə-plăs'tĭk) *adj.* Suppressing the growth or expansion of neoplasms.

an·ti·neu·tri·no (ăn'tē-nōō-trē'nō, -nyōō-) *n., pl.* **-nos.** The antiparticle of the neutrino.

an·ti·neu·tron (ăn'tē-nōō'trŏn', -nyōō'-) *n.* The antiparticle of the neutron.

an·ti·node (ăn'tĭ-nōd') *n.* The point or region of greatest amplitude between adjacent nodes.

an·ti·no·mi·an (ăn'tĭ-nō'mē-ən) *n.* [Med. Lat. *antinomus* : Gk. *anti-*, against + *nomos*, law.] A member of a Christian sect believing that faith alone is necessary to salvation. —**an'ti·no'mi·an** *adj.* —**an'ti·no'mi·an·ism** *n.*

an·tin·o·my (ăn-tĭn'ə-mē) *n., pl.* **-mies.** [Lat. *antinomia* < Gk. : *anti-*, against + *nomos*, law.] **1.** An apparent contradiction between valid principles or conclusions that seem equally necessary and reasonable. **2.** A contradiction, opposition, or conflict.

an·ti·nov·el (ăn'tē-nŏv'əl) *n.* A novel lacking traditional features of a work of fiction, as coherent structure and character development. —**an'ti·nov'el·ist** *n.*

an·ti·nu·cle·on (ăn'tē-nōō'klē-ŏn', -nyōō'-) *n.* The antiparticle of a nucleon.

an·ti·ox·i·dant (ăn'tē-ŏk'sĭ-dənt) *n.* A chemical substance that inhibits oxidation.

an·ti·par·ti·cle (ăn'tē-pär'tĭ-kəl) *n.* A subatomic particle, as a positron, antiproton, or antineutron, having the same mass, average lifetime, spin, magnitude of magnetic moment, and magnitude of electric charge as the particle to which it corresponds but having the opposite sign of electric charge, opposite intrinsic parity, and opposite direction of magnetic moment.

an·ti·pas·to (ăn'tē-päs'tō) *n., pl.* **-tos** or **-ti** (-tē) [Ital. : *anti-*, before (< Lat. *ante*) + *pasto*, food < Lat. *pastus* < *pascere*, to feed.] An appetizer usu. including cheese, smoked meats, fish, and vegetables, served with oil and vinegar.

an·tip·a·thet·ic (ăn-tĭp'ə-thĕt'ĭk) *also* **an·tip·a·thet·i·cal** (-ĭ-kəl) *adj.* **1.** Having an inherent feeling of aversion, repugnance, or opposition. **2.** Causing antipathy. —**an·tip'a·thet'i·cal·ly** *adv.*

an·tip·a·thy (ăn-tĭp'ə-thē) *n., pl.* **-thies.** [Lat. *antipathia* < Gk. *antipatheia* : *anti-*, against + *pathos*, feeling.] **1.** A strong feeling of aversion, repugnance, or opposition. **2.** An object of aversion.

an·ti·per·i·od·ic (ăn'tē-pîr'ē-ŏd'ĭk) *adj.* Preventing regular recurrence of fever or disease. —*n.* An antiperiodic drug.

an·ti·per·son·nel (ăn'tē-pûr'sə-nĕl') *adj.* Designed to injure or kill the military personnel or civilian population of an enemy country.

an·ti·per·spi·rant (ăn'tē-pûr'spər-ənt) *n.* A preparation applied esp. to the underarms to decrease or prevent excessive perspiration.

an·ti·phlo·gis·tic (ăn'tē-flō-jĭs'tĭk) *adj.* Reducing inflammation or fever. —**an'ti·phlo·gis'tic** *n.*

an·ti·phon (ăn'tə-fŏn') *n.* [Fr. *antiphone* < Med. Lat. *antiphona*, sung responses. —see ANTHEM.] **1.** A devotional composition sung responsively as part of a liturgy. **2.** A short liturgical text chanted responsively before a psalm or canticle. **3.** A response or answer. —**an·tiph'o·nal** (-tĭf'ə-nəl) *adj.* —**an·tiph'o·nal·ly** *adv.*

an·tiph·o·nary (ăn-tĭf'ə-nĕr'ē) *n., pl.* **-ies.** A bound collection of antiphons.

an·tiph·o·ny (ăn-tĭf'ə-nē) *n., pl.* **-nies.** **1.** Responsive singing or chanting. **2.** ANTIPHON 1. **3.** One that answers or echoes another.

an·tip·o·dal (ăn-tĭp'ə-dəl) *adj.* **1.** Of, relating to, or located on the opposite side or sides of the earth. **2.** Diametrically opposed.

an·ti·pode (ăn'tĭ-pōd') *n.* [Back-formation from ANTIPODES.] A direct opposite.

an·tip·o·des (ăn-tĭp'ə-dēz') *pl.n.* [ME < Lat. < Gk. < *antipous*, with the feet opposite : *anti-*, opposite + *pous*, foot.] **1.** Two places or regions on opposite sides of the earth. **2.** (*sing.* or *pl.* in *number*). One that is the exact opposite of another.

an·ti·pol·lu·tion (ăn'tē-pə-lōō'shən) *adj.* Intended to counteract or eliminate environmental pollution. —**an'ti·pol·lu'tion·ist** *n.*

an·ti·pope (ăn'tĭ-pōp') *n.* [ME < Med. Lat. *antipapa* : Lat. *anti-*, opposed to + *papa*, pope.] One claiming to be pope in opposition to the one chosen by church law.

an·ti·pov·er·ty (ăn'tē-pŏv'ər-tē) *adj.* Intended to alleviate poverty.

an·ti·pro·ton (ăn'tē-prō'tŏn') *n.* The antiparticle of the proton.

an·ti·py·ret·ic (ăn'tē-pī-rĕt'ĭk) *adj.* Reducing fever. —*n.* An antipyretic drug or agent. —**an'ti·py·re'sis** (-rē'sĭs) *n.*

an·ti·py·rine (ăn'tē-pī'rēn') *n.* [Orig. a trademark.] A white powder, $C_{11}H_{12}N_2O$, used to reduce pain and fever.

an·ti·quar·i·an (ăn'tĭ-kwâr'ē-ən) *adj.* **1.** Of or relating to antiquaries or the study of antiquities. **2.** Dealing in or concerning rare old books. —*n.* An antiquary. —**an'ti·quar'i·an·ism** *n.*

an·ti·quark (ăn'tē-kwôrk') *n.* The antiparticle of a quark.

an·ti·quary (ăn'tĭ-kwĕr'ē) *n., pl.* **-ies.** [Lat. *antiquarius* < *antiquus* ...] ... or dealer in antiquities.

an·ti·quate (ăn'tĭ-kwāt') *vt.* **-quat·ed, -quat·ing, -quates.** [Lat. *antiquare, antiquat-*, to leave in an old state < *antiquus*, old.] To make old-fashioned or obsolete. —**an'ti·qua'tion** *n.*

an·ti·quat·ed (ăn'tĭ-kwā'tĭd) *adj.* **1.** So old as to be useless or ... suitable : OBSOLETE. **2.** Very old : AGED. —**an'ti·quat'ed·ness** *n.*

an·tique (ăn-tēk') *adj.* [Fr. < Lat. *antiquus*, old.] **1.** Of, pertaining to, or belonging to ancient times. **2.** Belonging to, made in, or typical of an earlier period. **3.** Old-fashioned. —*n.* An object having special value because of its age, esp. a work of art or handicraft more than 100 years old. —*vt.* **-tiqued, -tiqu·ing, -tiques.** To give the appearance of an antique to. —**an·tique'ly** *adv.* —**an·tique'ness** *n.*

an·tiqu·er (ăn-tē'kər) *n.* One who treats or finishes new furniture so as to make it appear antique.

an·tiq·ui·ty (ăn-tĭk'wĭ-tē) *n., pl.* **-ties.** **1.** Ancient times, esp. ... times before the Middle Ages. **2.** The people, esp. the writers, ... ancient times. **3.** The quality or state of being old or ancient. **4.** ... **antiquities.** Something, as a relic, belonging to or dating from ancient times.

an·ti·ra·chit·ic (ăn'tē-rə-kĭt'ĭk) *adj.* Preventing or treating rickets. —*n.* An antirachitic drug or food.

an·tir·rhi·num (ăn'tə-rī'nəm) *n.* [NLat., genus name < Gk. *antirrhinon* : *anti-*, counterfeiting + *rhis*, nose.] A plant of the genus *Antirrhinum*, as a snapdragon.

an·ti·scor·bu·tic (ăn'tē-skôr-byōō'tĭk) *adj.* Preventing or treating scurvy. —*n.* An antiscorbutic food or drug.

an·ti-Sem·ite (ăn'tē-sĕm'īt') *n.* One who discriminates against or is hostile to or prejudiced against Jews. —**an'ti-Se·mit'ic** (-sə-mĭt'ĭk) *adj.* —**an'ti-Sem'i·tism** *n.*

an·ti·sep·sis (ăn'tĭ-sĕp'sĭs) *n.* The destruction of microorganisms that cause disease, fermentation, or putrefaction.

an·ti·sep·tic (ăn'tĭ-sĕp'tĭk) *adj.* **1.** Of, relating to, or designating antisepsis. **2.** Capable of producing antisepsis. **3.** Entirely clean. **4.** Devoid of enlivening or enriching qualities. **5.** Impersonal. —*n.* An antiseptic drug or agent. —**an'ti·sep'ti·cal·ly** *adv.*

an·ti·se·rum (ăn'tĭ-sîr'əm) *n., pl.* **-rums** or **-ra** (-rə). Human ... animal serum having antibodies for at least one antigen.

an·ti·slav·ery (ăn'tē-slā'və-rē, -slāv'rē) *adj.* Opposed to slavery. —**an'ti·slav'ery** *n.*

an·ti·smog (ăn'tē-smŏg', -smôg') *adj.* Counteracting or eliminating smog.

an·ti·so·cial (ăn'tē-sō'shəl) *adj.* **1.** Avoiding the society of others : UNSOCIABLE. **2. a.** Opposed to the established social order. **b.** Characterized by or engaging in behavior that violates conventional ... —**an'ti·so'cial·ly** *adv.*

an·ti·spas·mod·ic (ăn'tē-spăz-mŏd'ĭk) *adj.* Alleviating or preventing spasms. —*n.* An antispasmodic drug.

an·ti·stat·ic (ăn'tē-stăt'ĭk) *also* **an·ti·stat** (-tē-stăt') *adj.* Preventing or inhibiting the build-up of static electricity.

an·tis·tro·phe (ăn-tĭs'trə-fē) *n.* [LLat. < Gk. *antistrophē*, a turning back < *antistrephein*, to turn back : *anti-*, back + *strephein*, to turn.] **1.** The movement following and in the same meter as ... strophe in ancient Greek choral poetry or drama, sung while the chorus moves in the opposite direction from that of the strophe. **2.** The second stanza in a poem having alternating stanzas in contrasting metric form. —**an'ti·stroph'ic** (ăn'tĭ-strŏf'ĭk) *adj.* —**an'ti·stroph'i·cal·ly** *adv.*

an·ti·sub·ma·rine (ăn'tē-sŭb'mə-rēn', -sŭb'mə-rēn') *adj.* ... against enemy submarines.

an·ti·tank (ăn'tē-tăngk') *adj.* Designed for combat against armored vehicles, esp. tanks.

an·tith·e·sis (ăn-tĭth'ĭ-sĭs) *n., pl.* **-ses** (-sēz') [LLat. < Gk., opposition < *antitithenai*, to oppose : *anti-*, against + *tithenai*, to ...] **1.** Direct contrast : OPPOSITION. **2.** The direct opposite. **3. a.** The juxtaposition of sharply contrasting ideas in balanced or parallel words, phrases, or grammatical structures, e.g., Milton's "He for God only, she for God in him." **b.** The second and contrasting part of such a juxtaposition. **4.** The second stage of the dialectic process.

an·ti·thet·i·cal (ăn'tĭ-thĕt'ĭ-kəl) *also* **an·ti·thet·ic** (-ĭk) ... [LLat. *antitheticus*, Gk. *antithetikos* < *antitithenai*, to oppose. —see ANTITHESIS.] **1.** Relating to, like, or characterized by antithesis. **2.** Directly opposed. —**an'ti·thet'i·cal·ly** *adv.*

an·ti·tox·ic (ăn'tē-tŏk'sĭk) *adj.* **1.** Counteracting a toxin or poison. **2.** Of or relating to an antitoxin.

an·ti·tox·in (ăn'tē-tŏk'sĭn) *n.* **1.** An antibody formed in response to and capable of neutralizing a biological poison. **2.** An animal serum containing antitoxins.

an·ti·trades (ăn'tĭ-trādz') *pl.n.* The westerly winds above the ... winds of the tropics, which become the westerly winds of the middle latitudes.

an·ti·trust (ăn'tē-trŭst') *adj.* Opposing or regulating trusts, cartels, or similar business monopolies.

an·ti·tu·mor (ăn'tĭ-tōō'mər, -tyōō'-) *also* **an·ti·tu·mor·al** (-mər-əl) *adj.* Anticancer.

WEBSTEF

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This is the feature most re users. *Webster's II* gives yc history paragraphs descril development of interestir language. Example:

> **A word history:** Aboveboard is board. It is recorded as early as th If the gambler's hands were abo presumably he could not surrepe in other forms of cheating.

Usage Guidance

You'll find two kinds of usage notes are include problem terms in the m In addition, a section i plains in detail some o confusing questions al

In the main part of the

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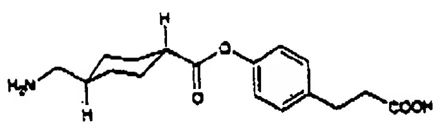


Crystals from methanol, melts over a range of 200-280°. Hydrochloride. $C_{17}H_{23}NO_4.HCl$. *DV-1006, Newer.* Crystals from methanol/ether, mp 238-240°.

THERAP CAT: Antiulcerative.

2068. **Cetrimonium Bromide.** *N,N,N-Trimethyl-1-hexadecanaminium bromide; hexadecyltrimethylammonium bromide;* cetyltrimethylammonium bromide; Bromat; Cetab; Cetavlon; Cetylamine; C.T.A.B.; Lissolamine V; Micol; Quamonium. $C_{19}H_{42}BrN$; mol wt 364.45. C 62.62%, H 11.62%, Br 21.92%, N 3.84%. $[CH_3(CH_2)_{15}N(CH_3)_3]Br$. Prepd from cetyl bromide and trimethylamine: Shelton *et al., J. Am. Chem. Soc.* 68, 753 (1946). Toxicity and pharmacology: B. Isomaa, K. Bjondahl, *Acta Pharmacol. Toxicol.* 47, 17 (1980).

Crystals, mp 237-243°. Soluble in about 10 parts water. Freely sol in alc; sparingly sol in acetone. Practically insol in ether, benzene. Stable in acid soln. LD_{50} in mice, rats (mg/kg): 32.0, 44.0 i.v. (Isomaa, Bjondahl).

p-Toluenesulfonate analog, $C_{26}H_{49}NO_3S$, *cetrimonium tosylate, Cetats.*

Note: Cetrimide is a mixture consisting chiefly of tetradecyltrimethylammonium bromide together with smaller amounts of dodecyltrimethylammonium bromide and cetrimonium bromide.

USE: As cationic detergent and antiseptic; as laboratory reagent.

THERAP CAT: Antiseptic (topical).

THERAP CAT (VET): Antiseptic, cleansing agent.

2069. **Cetrimonium Stearate.** *N,N,N-Trimethyl-1-hexadecanaminium octadecanoate; hexadecyltrimethylammonium stearate;* cetyltrimethylammonium stearate; trimethylhexadecylammonium stearate; Arquad 16 stearate; Dynafac. $C_{37}H_{77}NO_2$; mol wt 568.02. C 78.24%, H 13.66%, N 2.47%, O 5.63%. $[CH_3(CH_2)_{16}COO][CH_3(CH_2)_{15}N(CH_3)_3]$. Prepn: Gautier *et al., Bull. Soc. Chim. France* 1955, 634.

Solid, mp 142-143°. Practically insol in water, alcohol.

Note: The commercial product, a waxy solid, also contains other alkyltrimethylammonium stearates, since the hexadecyl chain is derived from soybean fatty acids.

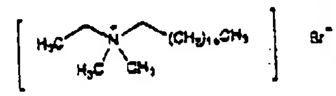
2070. **Cetyl Alcohol.** *1-Hexadecanol;* ethal; ethol; palmityl alcohol. $C_{16}H_{34}O$; mol wt 242.45. C 79.27%, H 14.14%, O 6.60%. $CH_3(CH_2)_{14}CH_2OH$. Discovered by Chevreul in 1813. Obtained from spermaceti by saponification: Spada, Gavioli, *Farm. Sci. e Tec.* (Pavia) 7, 435 (1952), *C.A.* 47, 391c (1953). Prepn from palmitoyl chloride + $NaBH_4$: Caikin, Brown, *J. Am. Chem. Soc.* 71, 122 (1949); from methylthiopalmitate + Raney Ni: Ruzicka, Prelog, U.S. pat. 2,509,171 (1950 to Ciba); from hexadecyl bromide: Levine, Clippinger, U.S. pat. 3,018,308 (1962 to California Res. Corp.).

White crystals. d 0.811. mp 49°. bp 344°; bp_{15} 190°. n_D^{79} 1.4283. Practically insol in water. Sol in alcohol, chloroform, ether.

Note: The *hexadecyl alcohol* developed by Esso Res. & Eng. Co. for cosmetics is a liquid, primary, branched chain C_{16} alcohol, made up of an array of isomeric compds maintained in constant proportion by a complex manufacturing process (not from spermaceti): Edman, Lowden, *Drug Cosmet. Ind.* 93, 531 (Nov. 1963). Liquid. d_{20}^{20} 0.842. bp_{760} 195-205°. Freezes at < −60°. Miscible with most alcohols, glycols, esters, ketones, cosmetic oils and aromatics. Immiscible with water.

USE: In cosmetics as emollient, emulsion modifier, coupling agent. Pharmaceutic aid (emulsifying and stiffening agent).

2071. **Cetyldimethylethylammonium Bromide.** *N-Ethyl-N,N-dimethyl-1-hexadecanaminium bromide;* ethylhexadecyldimethylammonium bromide; ethyl cetab; CDA; Ammonyx DME; Bretol. $C_{20}H_{44}BrN$; mol wt 378.48. C 63.47%, H 11.72%, Br 21.11%, N 3.70%. Cationic germicidal detergent. Prepn and antibacterial activity: R. S. Shelton *et al., J. Am. Chem. Soc.* 68, 753 (1946).



White powder, mp 178-186°. Soluble in water, alco[hol]; slightly sol in chloroform, benzene, ether. LD_{50} orally in rats: 500 mg/kg, *RTECS* Vol. 1, R. J. Lewis, R. L. Ta[tken], Eds. (1979) p 107.

USE: Disinfectant; laboratory reagent.

THERAP CAT: Antiseptic (topical).

THERAP CAT (VET): Antiseptic (topical).

2072. **Cetyl Lactate.** *2-Hydroxypropanoic acid he[xa]decyl ester; 1-hexadecanol lactate;* lactic acid cetyl ester; la[c]tic acid hexadecyl ester; Ceraphyl 28. $C_{19}H_{38}O_3$; mol wt 314.51. C 72.56%, H 12.18%, O 15.26%. $CH_3CHO[H]COOC_{16}H_{33}$. Preparation: Rehberg, Marion, *J. Am. Ch[em.] Soc.* 72, 1918 (1950).

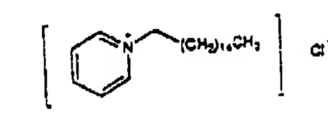
Waxy solid. mp 41°. $bp_{0.3}$ 132°; bp_1 170°; bp_{10} 219°. [$n_D^{?}$] 1.4410; n_D^{50} 1.4370.

USE: Non-ionic emollient. To improve feel and textu[re of] cosmetic and pharmaceutical prepns.

2073. **Cetyl Palmitate.** *Hexadecanoic acid hex[adecyl] ester; palmitic acid hexadecyl ester;* hexadecyl palmitate. $C_{32}H_{64}O_2$; mol wt 480.86. C 79.93%, H 13.42%, O 6.6[5%]. $CH_3(CH_2)_{14}COOCH_2(CH_2)_{14}CH_3$. Prepn from palm[itoyl] chloride and cetyl alcohol in the presence of Mg: Pa[...], Bouquet, *Bull. Soc. Chim. France* 1947, 331; by CrO_3-H[...] oxidation of cetyl alcohol: Cymerman-Craig, Horn[ing], *J. Org. Chem.* 25, 2098 (1960). Biosynthesis using inocul[a of] *Nocardia salmonicolor:* Davis, U.S. pat. 3,169,099 (19[65 to] Socony Mobil Oil).

Monoclinic leaflets, mp 54°. d^{20} 0.989. n_D^{70} 1.4398. [Prac]tically insol in water. Sol in abs alc, ether.

2074. **Cetylpyridinium Chloride.** *1-Hexadecylpyr[idin]ium chloride;* Ceepryn; Cepacol; Dobendan; Med[...]; Merocet; Pristacin; Pyrisept. $C_{21}H_{38}ClN$; mol wt 339.9[9]. [C] 74.19%, H 11.27%, Cl 10.43%, N 4.12%. Pharmacolog[y and] toxicology: *J. Pharmacol. Exp. Ther.* 74, 401 (1942). [Re]view of early literature: C. L. Huyck, *Am. J. Pharm.* 11[6 ...] (1944). Toxicity data: J. W. Nelson, S. C. Lyster, *J. Am. Pharm. Assoc.* 35, 89 (1946).



Monohydrate, *Halset.* White powder, mp 77-83°. [V]ery sol in water, alcohol, chloroform; very slightly sol in [benz]ene, ether. pH (1% aq soln): 6.0 to 7.0. Surface [tension] (25°): 43 dyn/cm (0.1% aq soln); 41 dyn/cm (1.0%); [...] dyn/cm (10%). LD_{50} in rats (mg/kg): 250 s.c.; 6 i[.p.]; i.v.; 200 orally (Nelson, Lyster).

USE: Pharmaceutic aid (preservative).

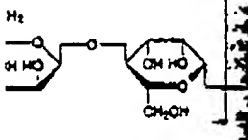
THERAP CAT: Antiseptic; disinfectant.

THERAP CAT (VET): Topical antiseptic; disinfectant.

2075. **Cevadine.** *[3β(Z),4α,16β]-4,9-Epoxyce[vane]-3,4,14,16,17,20-heptol 3-(2-methyl-2-butenoate);* ve[ratrine]. $C_{32}H_{49}NO_9$; mol wt 591.74. C 64.95%, H 8.35%, N [2.37%], O 24.33%. From seeds of *Schoenocaulon officinale* (Schlecht. & Cham.) A. Gray (*Sabadilla officinarum* Brandt): Poetsch *et al., J. Am. Pharm. Assoc.* 38, 525 (19[49]); Ringel, *ibid.* 45, 433 (1956). Evaluation as in[secticide]: Ikawa, Link *et al., J. Biol. Chem.* 159, 517 (1945). [Struc]ture: Kupchan, Alfonso, *ibid.* 49, 242 (1960). [...] study: Swiss, Bauer, *Proc. Soc. Exp. Biol. Med.* [...] (1951). Review: Wintersteiner in Grall, *Essays [in] chemistry* (Wiley, New York, 1956) pp 308-321.

hydrate. $C_{19}H_{12}N_2O_5PNa_2$, ...
...mp at about 250°. Char...
...absorbancy): 13.7 × 10⁴ ...
...ter at 25° about 25 g/100 m...
...acetone, ether.
...salt as flavor intensifier, like ...
...lutamate. Said to be more ...

...rincipal polysaccharide from ...
Tyamopsis tetragonaloba (L.) ...
Whistler, *J. Am. Chem. Soc.* ...
...istler, Durso, *ibid.* 74, 5140; ...
...s, Kurath, *J. Polymer Sci.* ...
Deuel *et al.*, *Chimia* 8, 64 (19...



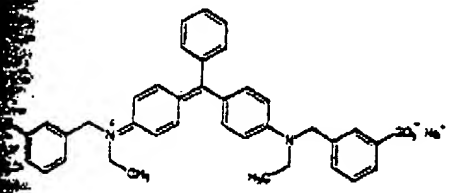
...). Sol in cold water.
...terial, mp 226-227°. Can be ...
...t can be elongated 550%. ...
...ot develop crystallinity. ...
...aper industry.

Guar flour: gum cyamo... ...
V-7-E; Jaguar; Decorpa ... ...
Mol wt about 220,000. The ...
...uis tetragonoiobus (L.) ... ...
...ated in India as livestock ...
...85%) of guar flour is called ...
...r chains of (1→4)-β-D-... ...
...galactopyranosyl units ... ...
...of D-galactose to D-manose ...
...lism: D. J. A. Jenkins *et al.*, ...
...; on glucose and lipid le... ...
...steers: U. Smith, G. Ha... ...
...) 45, 1 (1982); on renal ... ...
...in *et al.*, *Biomed. Res.* 1, 2... ...
...patients with non-insulin ... ...
...r *et al.*, *Am. J. Clin. Nu...* ...
...dies: S. L. Graham *et al.*, ...
1981). Comprehensive ... ...
...nery, *The Chemistry of P...* ...
...d. New York, 1959) 627 pp. ...
...dustrial Gums, R. L. Wh... ...
York, 2nd ed., 1973) p 3... ...
. Completely sol in cold ... ...
in oils, greases, hydroc... ...
...ins are tasteless, odorless ... ...
gray color, and neutral. ... ...
times the thickening pow... ...
...verted to a gel by small ... ...
...s are neutral. *Cf.* "A C... ...
y Available Guar Gums" ... ...
...silucci, *Drug Standards* ... ...
female rats (g/kg): 7.35. ...

...g; as a protective colloid ...
...rming agent for cheese ...
...as a binding and disinte... ...
...in pharmaceutical jelly ... ...
...ms, lotions, creams, ...
a flocculant, as a filter ... ...
...agulant aid. ...
...ct to diet, insulin ac... ...
...abetes.

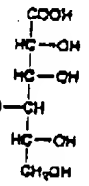
...an 8, *N-Ethyl-N-[4-[[4-... ...*
...ylphenyl]phenylmethyl...

...-1-ylidene]-3-sulfobenzenemethanaminium inner ...
...salt C.I. Acid Green 3; C.I. Food Green 1; FD ...
...; C.I. 42085. $C_{37}H_{33}N_2NaO_6S_2$; mol wt 690.82. ...
...H 5.11%, N 4.06%, Na 3.33%, O 13.90%, S ...
...Prepn: Jones *et al.*, *J. Assoc. Offic. Agr. Chem.* 38, ...
...(1955). Toxicity studies: F. C. Lu, A. Lavalle, *Can. ...* ...
J. 97, 30 (1964); W. H. Hansen *et al.*, *Food Cosmet. ...* ...
4, 389 (1966). *See also: Colour Index* vol. 4 (3rd ...
...71) p 4385.



..., dark green powder, or a bright, crystalline solid. ...
...water to a green soln which becomes brownish-yellow ...
...of HCl and blackish-green with NaOH. An excess ...
...OH decolorizes the soln. Sparingly sol in alcohol; it ...
...is conc'd H_2SO_4 to a yellow soln which, when di... ...
...water, turns first yellowish-red, then green. LD_{50} ...
...in rats: > 2 g/kg (Lu, Lavalle). ...
Limited use as a dye for silk and wool fabrics; as ...
...stain. Delisted by FDA in 1966 for use in foods, ...
...and cosmetics.

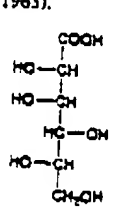
...D-Gulonic Acid. $C_6H_{12}O_7$; mol wt 196.16. C ...
...H 6.17%, O 57.09%. Prepd as the sodium salt by ...
...of sodium glucuronate with sodium amalgam in ...
...medium: Fischer, Piloty, *Ber.* 24, 525 (1891); from ...
...acid γ-lactone: Reborat, Naumann, *ibid.* 77, 24 ...



...(10 min) → −38.6° (15 days). The free acid ...
...lactone spontaneously. pK (25°): 3.68. ...
...salt, $C_6H_{11}NaO_7$, crystals. $[\alpha]_D^{20}$ −11.5°. Sol in ...

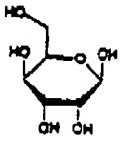
...salt, $Ca(C_6H_{11}O_7)_2$, $[\alpha]_D^{20}$ −14.45° (c = 1.73), ...
...from aq soln by alc.

L-Gulonic Acid. Xylotetracarboxylic acid. C_6H_{12}... ...
...wt 196.16. C 36.74%, H 6.17%, O 57.09%. Prepd ...
...and HCN followed by hydrolysis of the ni... ...
...Fischer, Stahel, *Ber.* 24, 529 (1891). Prepn from D-... ...
...acid: Ger. pat. 618,907 (1935 to Hoffmann-La ...
...from L-gulonolactone: Ishidate *et al.*, *Chem. ...* ...
...*Pharm. Bull.* 13, 173 (1965).



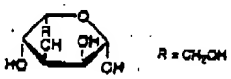
...as the lactone on evapn of an aq soln. ...
...salt, $[\alpha]_D^{20}$ −12.7° (c = 9). Freely sol in water. ...

...D-Gulose, $C_6H_{12}O_6$; mol wt 180.16. C 40.00%, ...
...O 53.28%. Prepd by sodium amalgam reduction ...
...of the γ-lactone of D-gulomic acid: Fischer, ...
Stahel, *Ber.* 24, 532 (1891); van Ekenstein, Blanksma, *Rec. Trav. Chim.* 27, 3 (1908). Alternate synthesis: Meyer zu Reckendorf, *Angew. Chem. Int. Ed.* 6, 177 (1967); *idem, Methods Carbohyd. Chem.* 6, 129 (1972); R. Köster *et al.*, *Angew. Chem. Int. Ed.* 19, 547 (1980).



Syrup. Sweet taste. $[\alpha]_D^{20}$ −20.4°. Sol in water, slight sol in alcohol. Not fermentable by yeast.

4607. L-Gulose. $C_6H_{12}O_6$; mol wt 180.16. C 40.00%, H 6.71%, O 53.28%. Prepd by sodium amalgam reduction of an acid soln of the γ-lactone of L-gulomic acid: Fischer, Piloty, *Ber.* 24, 526 (1891). *See also* van Ekenstein, Blanksma, *Rec. Trav. Chim.* 27, 3 (1908); Levene, LaForge, *J. Biol. Chem.* 20, 430 (1915); Talen, *Rec. Trav. Chim.* 44, 891 (1925); Isbell, *J. Am. Chem. Soc.* 55, 2167 (1933). Synthesis from D-mannose: Evans, Parrish, *Carbohyd. Res.* 28, 359 (1973); from D-glucose: D. K. Minster, S. M. Hecht, *J. Org. Chem.* 43, 1987 (1978).



Syrup. $[\alpha]_D^{20}$ +61.6°, $[\alpha]_D$ +21.3° (c = 4.58) (Evans, Parrish). Freely sol in water; slightly sol in alcohol. Not fermentable by yeast.

4608. Gum Benzoin. Resin benzoin; resin benjamin; gum benjamin. Balsamic resin from *Styrax benzoin* Dryand., known as Sumatra benzoin, or from *S. tonkinensis* (Pierre) Craib, *Styracaceae*, or other species of *Styrax* known as Siam benzoin. *Habit:* Thailand, Cambodia, S. Vietnam, Sumatra, Java, and Sunda Islands. *Constit.* Ethereal oil, free and combined benzoic and cinnamic acids up to 39%, vanillin, coniferyl benzoate, resin (a mixture of benzoresinol and benzoresinotannol) esterified with benzoic acid, styrol, styracin. Not less than 90% of Siam and not less than 75% of Sumatra benzoic is sol in ale (U.S.P.). *Ref:* Reinitzer, *Arch. Pharm.* 264, 131 (1926); Brans, *Pharm. Weekbl.* 73, 374 (1936); Freudenberg, Büttner, *Ber.* 83, 600 (1950).

USE: Preserving ointments; preparing natural benzoic acid; for fumigating pastilles; in perfumery and cosmetics.

THERAP CAT: Topical protectant.

THERAP CAT (VET): Tincture is used topically as an antiseptic and to promote healing; as an inhalant for bronchitis, and orally as an expectorant.

4609. Gum Tragacanth. Tragacanth. Mol wt about 840,000. The dried gummy exudation from *Astragalus gummifer* Labill. (white gavan) or other Asiatic species of *Astragalus*, *Leguminosae*, found largely in Iran, also in Asia Minor and in Syria. When mixed with water gives a soluble fraction, as a hydrosol, called *tragacanthin* which is a complex mixture of polysaccharides containing D-galacturonic acid, other sugars, and traces of starch and cellulose. The insoluble fraction swells to a gel and consists of 60-70% bassorin, q.v. Structural studies: Norman, *Biochem. J.* 25, 200 (1931); James, Smith, *J. Chem. Soc.* 1948, 739, 749; Aspinall, Baillie, *ibid.* 1963, 1702, 1714. *Reviews:* Beach, in *Natural Plant Hydrocolloids*, Advances in Chemistry Series 11 (A.C.S., Washington, 1954) pp 38–44; Meer *et al.* in *Industrial Gums*, R. L. Whistler, Ed. (Academic Press, New York, 2nd ed., 1973) pp 289-299. *Book:* F. Smith, R. Montgomery, *The Chemistry of Plant Gums and Mucilages* (Reinhold, New York, 1959) 627 pp.

Odorless. Insipid, mucilaginous taste. Acid reaction. One gram requires 0.9 ml 0.1*N* NaOH for neutralization to phenolphthalein: Gabel, *J. Am. Pharm. Assoc.* 23, 341 (1934). Viscosity of tragacanth mucilages is reduced by adding acid, alkali, and NaCl particularly if the mucilage is heated: Mantell, *The Water-Soluble Gums* (New York,